Appl. No. 10/691,757
Amdt. dated November 22, 2005
Amendment under 37 CFR 1.116 Expedited Procedure
Examining Group 2651

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Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.   (Currently Amended) A data storage device, comprising:

a write head for writing data onto a magnetic disk;

a write circuit configured to generate the write current to be supplied to said write head by using a supplied positive voltage and a supplied negative voltage;

a converter configured to generate said negative voltage to be supplied to said write circuit from said positive voltage; and

a programmable controller configured to variably set the magnitude of said negative voltage based on information input to said controller;

wherein said controller sets the magnitude of said negative voltage in accordance with an ambient temperature for said magnetic disk.

2.   (Canceled)

3.   (Currently Amended) The data storage device according to claim [[2]] 1, wherein said controller sets a large absolute value for said negative voltage if said ambient temperature is low, and sets a small absolute value for said negative voltage if said ambient temperature is high.

4.   (Canceled)

5.   (Currently Amended) [[The]] A data storage device [[according to claim 4]], comprising:

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a write head for writing data onto a magnetic disk;

a write circuit configured to generate the write current to be supplied to said write head by using a supplied positive voltage and a supplied negative voltage;

a converter configured to generate said negative voltage to be supplied to said write circuit from said positive voltage; and

a programmable controller configured to variably set the magnitude of said negative voltage based on information input to said controller;

wherein said controller sets the magnitude of said negative voltage in accordance with the magnitude of said positive voltage;

wherein said controller sets a large absolute value for said negative voltage if said positive voltage is low, and sets a small absolute value for said negative voltage if said positive voltage is high.

6.   (Original) The data storage device according to claim 1, wherein said controller changes the magnitude of said negative voltage when said write head is not performing a write operation.

7.   (Original) The data storage device according to claim 1, wherein said write circuit ensures that the write current value used for a specified period after the start of a write is greater than the write current value used after the elapse of the specified period.

8.   (Original) The data storage device according to claim 1, wherein said write circuit is of a voltage-driven type that directly provides voltage drive for said write head.

9.   (Original) The data storage device according to claim 1, wherein said converter comprises a register for storing a voltage command from said controller and a voltage converter for converting the voltage in accordance with the value stored in said register.

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10.   (Currently Amended) A data write method, comprising:

receiving a seek command or a write command for a read/write head over a magnetic disk;

setting by a controller the magnitude of a negative voltage to be supplied to a drive circuit for said read/write head in accordance with a specified condition based on information input to the controller, the negative voltage being generated from a positive voltage supplied to the drive circuit; and

causing said read/write head over said magnetic disk to perform a seek operation or a write operation;

wherein said specified condition is the ambient temperature for said magnetic disk.

11.   (Canceled)

12.   (Currently Amended) The data write method according to claim [[11]] 10, wherein said second step sets a large absolute value for said negative voltage if said ambient temperature is low and sets a small absolute value for said negative voltage if said ambient temperature is high.

13.   (Canceled)

14.   (Currently Amended) [[The]] A data write method [[according to claim 13]], comprising:

receiving a seek command or a write command for a read/write head over a magnetic disk;

setting by a controller the magnitude of a negative voltage to be supplied to a drive circuit for said read/write head in accordance with a specified condition based on

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information input to the controller, the negative voltage being generated from a positive voltage supplied to the drive circuit; and

causing said read/write head over said magnetic disk to perform a seek operation or a write operation;

wherein said specified condition is the magnitude of said supplied positive voltage;

wherein said second step sets a large absolute value for said negative voltage if said positive voltage is low and sets a small absolute value for said negative voltage if said positive voltage is high.

15.   (Canceled)

16.   (Previously Presented) The data storage device of claim 1, wherein said controller uses stored voltage command information in a register to variably set the magnitude of said negative voltage.

17.   (Previously Presented) The data storage device of claim 16, wherein the magnitude of said negative voltage is set to a predefined voltage defined by said stored voltage command information.

18.   (Currently Amended) [[The]] A data storage device [[according to claim 1]], comprising:

a write head for writing data onto a magnetic disk;

a write circuit configured to generate the write current to be supplied to said write head by using a supplied positive voltage and a supplied negative voltage;

a converter configured to generate said negative voltage to be supplied to said write circuit from said positive voltage; and

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a programmable controller configured to variably set the magnitude of said negative voltage based on information input to said controller;

wherein said controller sets the magnitude of said negative voltage in accordance with the average value of said positive voltage.

19.   (Currently Amended) [[The]] A data write method ~~of claim 10, further comprising~~, comprising:

receiving a seek command or a write command for a read/write head over a magnetic disk;

setting by a controller the magnitude of a negative voltage to be supplied to a drive circuit for said read/write head in accordance with a specified condition based on information input to the controller, the negative voltage being generated from a positive voltage supplied to the drive circuit;

causing said read/write head over said magnetic disk to perform a seek operation or a write operation; and

prior to causing the read/write head to perform the seek operation or the write operation:

storing values of previous positive and negative voltages;

measuring the value of a supplied positive voltage; and

computing the difference between the value of said supplied positive voltage and the value of said previous positive voltage;

wherein said specified condition used in setting the magnitude of the negative voltage is the computed difference.

20.   (Previously Presented) The method of claim 19, further comprising waiting for a preset period of time to allow the voltage to stabilize after setting the magnitude of the negative voltage before causing the read/write head to perform the seek operation or the write operation.

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21.   (New) The data storage device according to claim 18, wherein said controller changes the magnitude of said negative voltage when said write head is not performing a write operation.

22.   (New) The data storage device according to claim 18, wherein said write circuit ensures that the write current value used for a specified period after the start of a write is greater than the write current value used after the elapse of the specified period.

23.   (New) The data storage device according to claim 18, wherein said write circuit is of a voltage-driven type that directly provides voltage drive for said write head.

24.   (New) The data storage device according to claim 18, wherein said converter comprises a register for storing a voltage command from said controller and a voltage converter for converting the voltage in accordance with the value stored in said register.

25.   (New) The data storage device according to claim 18, wherein said controller uses stored voltage command information in a register to variably set the magnitude of said negative voltage.